Banana-shaped liquid crystal compounds combining flexoelectric polarization induction with other properties required for use in displays, comprise an optionally fluorinated phenylene ring substituted with mesogenic 'wings'

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Inventor(s):	HECKMEIER MICHAEL (DE); KIRSCH PEER (DE); KRAUSE JOACHIM (DE); GOULDING MARK (GB)
Applicant(s):	MERCK PATENT GMBH (DE)
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Abstract

Banana-shaped liquid crystal (LC) compounds comprising a phenylene ring substituted in the meta positions with mesogenic 'wings' containing units conventionally used in nematic LC compositions are new. Banana-shaped liquid crystal (LC) compounds of formula (I) are new. R<1> - R<4> = H, F, Cl, -OCF3, -OCHF2, -SF5, -CF3 or -CN; Z = a single bond, -(CR<1>R<2>)l-, -CH=CH-, -C?=C-, -C(O)O-, -O-C(O)-, -CR<1>R<2>-O-, -OCR<2>R<2>-, -CF=CF-, -CF2O-, -OCF2- or -CF2-CF2-; A = cis- or trans-1,4-cyclohexylene, 1,4-cyclohex-3-enylene or 1,4-phenylene optionally with 1-4H replaced by F; R<5> and R<6> = 1-12C alkyl or alkoxy (optionally mono-substituted by -CN or -CF3 or mono- or poly-substituted by halogen), 2-12C oxaalkyl, alkenyl or alkenyloxy or 3-12C oxaalkenyl, these groups optionally having one or more -CH2- groups replaced by -O-, -S-, -CO-, -COO-, -OCO- or -OCO-O- such that heteroatoms are not directly bonded together, and R<6> can also be = H, F, Cl, -CN, -OCF3 or -OCHF2; m and n = 1,2 or 3; l = an integer 1-4.

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